

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**In re Application of:**

EOFF ET AL.

Serial No.: 10/760,443

Filed: **JANUARY 20, 2004**

Title: "METHODS AND COMPOSITIONS FOR REDUCING THE PRODUCTION OF WATER AND STIMULATING HYDROCARBON PRODUCTION FROM A SUBTERRANEAN FORMATION"

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Group Art Unit: 1796

Confirmation No.: 9208

Examiner: **FIGUEROA, JOHN J.**

Atty. Docket No: 2001-IP-005267U1P1

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**PRE-APPEAL BRIEF REQUEST FOR REVIEW**

The following Pre-Appeal Brief Request for Review (“Request”) is being filed in accordance with the provisions set forth in the Official Gazette Notice of July 12, 2005 (“OG Notice”). Pursuant to the OG Notice, this Request is being filed concurrently with a Notice of Appeal and the applicable fee. Applicants respectfully request reconsideration of the application in light of the remarks set forth below.

### **REMARKS**

In a Final Office Action dated December 23, 2009 ("Final Office Action"), the Examiner improperly made the following rejections:

- Rejection of claims 77-79, 81-87, 107-112, 187, 188, 190-196, 198-203, 204, and 205 under 35 U.S.C. § 112, first paragraph;
- Rejection of claims 77-86, 88, 107-112, 187-195, 197-203, 206-213, and 215-222 under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 4,532,052 issued to Weaver *et al.* (hereinafter "*Weaver*");
- Rejection of claims 206-213 and 215-222 under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 3,271,307 issued to Dickson *et al.* (hereinafter "*Dickson*"); and
- Rejection of claims 83, 86-88, 192, 195-197, and 210, 213, and 214 under 35 U.S.C. § 103(a) as being unpatentable over *Weaver* in view of U.S. Patent No. 6,358,889 issued to Waggenspack *et al.* (hereinafter "*Waggenspack*").

Each of these rejections contains clear legal and factual deficiencies.

**1. Sufficient support for claims 77-79, 81-87, 107-112, 187, 188, 190-196, 198-203, 204, and 205 is provided in the specification as originally filed.**

Applicants respectfully disagree with the Examiner and assert that the specification as originally written provides sufficient support for the claim limitation of "a relative permeability modifier comprising a hydrophobically modified water-soluble polymer formed from . . . a polymerization reaction comprising a hydrophilic monomer and a hydrophobically modified hydrophilic monomer, wherein the hydrophobically modified water-soluble polymer formed from the reaction or the polymerization reaction has a molecular weight in the range of about 100,000 to about 10,000,000 and comprises a polymer backbone and a hydrophobic branch." Applicants note that the instant application is a continuation-in-part of U.S. Patent Application Publication No. 2004/0229756 (hereinafter "*Eoff*") and incorporates the disclosure of *Eoff* by reference. *Eoff* discloses the use of relative permeability modifiers that comprise a hydrophobically modified water-soluble polymer formed from a polymerization reaction of a hydrophilic monomer and a hydrophobically modified hydrophilic monomer. See *Eoff*, ¶ [0028]. Thus, because the instant application is a continuation-in-part of *Eoff* and incorporates that disclosure by reference, the instant application also provides support for this same disclosure. Furthermore, Applicants note that the instant application states that, "[t]he hydrophobically modified water-soluble polymers used in the present invention typically have a molecular weight in the range of from about 100,000 to about 10,000,000." See Specification, ¶

[0025]. Thus, because the instant application incorporates the disclosure of *Eoff* by reference (including the disclosure of the hydrophobically modified water-soluble modified discussed therein), the hydrophobically modified water-soluble polymers referred to in paragraph [0025] refer to all of the hydrophobically modified water-soluble disclosed in the instant specification, including those disclosed in the *Eoff* reference. As the instant specification states that these hydrophobically modified water soluble polymers have a molecular weight in the range of from 100,000 to about 10,000,000, the instant application has sufficient written description support for the limitation of “a relative permeability modifier comprising a hydrophobically modified water-soluble polymer formed from . . . a polymerization reaction comprising a hydrophilic monomer and a hydrophobically modified hydrophilic monomer, wherein the hydrophobically modified water-soluble polymer formed from the reaction or the polymerization reaction has a molecular weight in the range of about 100,000 to about 10,000,000 and comprises a polymer backbone and a hydrophobic branch.” Therefore, Applicants respectfully request the withdrawal of this rejection.

2. **Claims 77-86, 88, 107-112, 187-195, 197-203, 206-213, and 215-222 are not anticipated by Weaver.**

With respect to independent claims 77, 187, and 206, *Weaver* fails to disclose a hydrophobically modified water-soluble polymer that “reduces the permeability of the subterranean formation to an aqueous-based fluid.” The Examiner alleges that *Weaver* discloses polymers that may be used to reduce the permeability of a subterranean formation to an aqueous-based fluid. (See Final Office Action at 5-6.) The Examiner further alleges that these polymers would be a hydrophobically-modified water-soluble polymer in accordance with the instant claims. (See Final Office Action at 6.) Applicants respectfully disagree because the Examiner has not demonstrated that *Weaver* discloses polymers (comprising a hydrophilic polymer backbone with numerous hydrophilic branches and a hydrophobic alkyl branch) that reduce the permeability of a subterranean formation to an aqueous-based fluid.

The Examiner assumes that *Weaver* discloses such a polymer because *Weaver* references polymers with a “hydrophilic-hydrophobic balance” that may be used to increase or decrease the permeability of a subterranean formation to an aqueous-based fluid. See *Weaver*, col. 9, lines 59. However, Applicants note that while *Weaver* may refer to a hydrophilic-hydrophobic balance, *Weaver* only references this balance when discussing that “the branched

organic polymer also contains a hydrophilic portion in a concentration sufficient to produce the desired hydrophilic-hydrophobic balance within the formation” and that “the modifying portion of said polymer has the hydrophilic-hydrophobic balance desired to produce the desired formation surfaces characteristics and/or interaction with fluids such as gelling and increasing or decreasing permeability to certain fluids.” *See Weaver*, col. 7, lines 26-30; col. 9, lines 58-63. *Weaver* discloses a polymer with a backbone on which a branch chain can be attached, in addition to a hydrophilic portion, which then may reduce the permeability of a subterranean formation to an aqueous-based fluid. *See Weaver*, col. 7, lines 7-30. However, *Weaver* does not disclose that this branch chain is a hydrophobic branch comprising an alkyl chain of about 4 to about 22 carbons, as required by Applicants’ claims. *See Weaver*, entire disclosure. Nor does *Weaver* disclose a hydrophobically modified polymer that reduces the permeability of a subterranean formation to aqueous-based fluids. *See Weaver*, entire disclosure.

Furthermore, *Weaver* discloses that branched polymers containing a hydrophobic modifying portion increase water permeability. *See Weaver*, col. 7, lines 43-52. This is in direct contrast to the instant claims which clearly state that the hydrophobically modified polymers reduce water permeability. *Weaver* states, “another class of polymers can be prepared which have some hydrophobic and/or oleophilic portions, branches or overall nature so that these polymers can . . . produce a surface effect . . . which . . . increases the permeability of the formation to aqueous fluids.” *See Weaver*, col. 7, lines 43-52. Thus, *Weaver* teaches that even the presence of even some hydrophobic branches (not just an overall balance) would cause an increase in the permeability of a subterranean formation to aqueous-based fluids. Applicants have directed the Examiner’s attention to the table contained in columns 9 and 10 of *Weaver*. *See Weaver*, col. 9-10. As set forth in this table, *Weaver* teaches that branched polymers including a hydrophobic modifying portion **increase** water permeability. *See id.* Nowhere in *Weaver* is a polymer comprising a hydrophobically modified water-soluble polymer formed from a reaction comprising a hydrophilic polymer and a hydrophobic compound or a polymerization reaction comprising a hydrophilic monomer and a hydrophobically modified hydrophilic monomer disclosed that reduces the permeability of a subterranean formation to an aqueous-based fluid. *See Weaver*, entire disclosure.

Therefore, Applicants respectfully assert that independent claims 77, 187, and 206 and their dependent claims are not anticipated by *Weaver*. Therefore, Applicants respectfully request the withdrawal of this rejection.

**3. Claims 206-213 and 215-222 are not anticipated by Dickson.**

Applicants note that while the Final Office Action states, “The 35 U.S.C. 102 (b) rejection of claims 206-213 and 215-220 as anticipated by . . . USPN 3,271,307 to Dickson et al. . . . has been maintained for reason previously made of record in item 8 on page 4 of OA,” item 8 on page 4 of OA does not address the *Dickson* reference. (See Office Action mailed April 3, 2008 at 4.) Rather, item 8 on page 4 of OA addresses the rejection of these claims under 102(b) by *Weaver*. (See Office Action mailed April 3, 2008 at 4.) Moreover, Applicants note that the Examiner has not provided any basis on how claims 206-213 and 215-220 are anticipated by *Dickson*. It is Applicants’ belief that the Examiner has intended to state that only the rejections of claims 206-213 and 215-220 as anticipated by *Weaver* have been maintained. Therefore, as the Examiner has failed to provide any basis on how these claims are anticipated by *Dickson*, Applicants respectfully request the withdrawal of this rejection.

**4. Claims 83, 86-88, 192, 195-197, and 210, 213, and 214 are not unpatentable over Weaver in view of Waggenspack.**

As discussed above in Section 2, *Weaver* fails to teach each and every limitation of independent claims 77, 187, and 206. Moreover, *Waggenspack* fails to obviate the deficiencies of *Weaver*. Rather, the Examiner is merely relying on *Waggenspack* for its alleged teaching of a modified chitosan copolymer and not for a teaching of a hydrophobically modified water-soluble polymer that “reduces the permeability of the subterranean formation to an aqueous-based fluid.” (See Office Action mailed April 3, 2008.) Therefore, Applicants respectfully assert that independent claims 77, 187, and 206 and their dependent claims are not unpatentable over *Weaver* in view of *Waggenspack*. Therefore, Applicants respectfully request the withdrawal of this rejection.

**CONCLUSION**

In light of the above remarks, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections. Applicants further submit that the application is now in condition for allowance, and earnestly solicits timely notice of the same.

Applicants hereby petition for a one-month extension of time to file this Request under 37 C.F.R. § 1.136(a), extending the deadline from March 23, 2009 to April 23, 2009. Accordingly, Applicants have authorized via the Office's electronic filing system the Commissioner to debit the Deposit Account of Baker Botts L.L.P., Deposit Account No. 02-0383, Order Number 063718.0321, in the amount of \$130.00 under 37 C.F.R. § 1.17(a)(1) for the one-month extension of time, extending the period to reply up to and including April 23, 2009.

Applicants believe that there are no other fees due in association with this filing of this Request. However, should the Commissioner deem that any fees are due, the Commissioner is authorized to debit Baker Botts L.L.P.'s Deposit Account No. 02-0383, Order Number 063718.0321, for any underpayment of fees that may be due in association with this filing.

Respectfully submitted,



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